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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/670,150	09/26/2000	Yoshiaki Kohno	P/1071-1173	4837

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EXAMINER
DOUGHERTY, THOMAS M

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 11/30/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/670,150	Applicant(s) KOHNO ET AL.	
	Examiner Thomas M. Dougherty	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

New formal drawings are required in this application because the drawings have Japanese language writing on them which may be confusing to a member of the public were the case to issue. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the Patent and Trademark Office no longer prepares new drawings.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hanafy (US 5,945,770). Hanafy shows (figs. 2 and 3) a sensor array comprising: a substrate (22); and a plurality of piezoelectric oscillators fixed on a main surface of the substrate (22) in a matrix form, each of the piezoelectric oscillators comprising: a plurality of piezoelectric layers (24, 26, 28) laminated in a direction parallel to the main surface of the substrate (22); inner electrodes (50, 52) disposed between the plurality of piezoelectric layers (24, 26, 28); and outer electrodes (also 50, 52) formed on end faces of the plurality of piezoelectric layers (24, 26, 28).

The invention of claim 2 shows forming a multi-layer structure in which a plurality of piezoelectric layers (24, 26, 28) and a plurality of inner electrodes (50, 52) are laminated; forming a mother board by cutting the multi-layer structure in the laminated direction; forming outer electrodes on both main surfaces of the motherboard; fixing the motherboard on a main surface of a substrate (22) and cutting the motherboard to yield the plurality of piezoelectric oscillators. The invention is an ultrasonic diagnostic apparatus comprising an ultrasonic (see title) probe.

Note that the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

Additionally note that it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed, e.g. as an ultrasonic probe, does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte *Masham*, 2 USPQ2d 1647 (1987).

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith (US 5,548,564 and 5,744,898). Smith shows (fig. 1) a sensor array comprising: a substrate (see col. 7, ll. 45-47 in'564 and col. 8, ll. 65-66 in '898); and a plurality of piezoelectric oscillators (11, 12, 14) fixed on a main surface of the substrate in a matrix form, each of the piezoelectric oscillators (11, 12, 14) comprising: a plurality of piezoelectric layers (24, 26, 28, 30, 32) laminated in a direction parallel to the main surface of the substrate; inner electrodes (34, 36, 38, 40) disposed between the plurality

of piezoelectric layers (24, 26, 28, 30, 32); and outer electrodes (42, 44) formed on end faces of the plurality of piezoelectric layers (24, 26, 28, 30, 32).

Note that the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation (that of claim 2) has not been given patentable weight.

Additionally note that it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed, e.g. as an ultrasonic probe (as in claim 3), does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte *Masham*, 2 USPQ2d 1647 (1987).

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith (US 5,329,496). Smith shows (fig. 1) a sensor array comprising: a substrate (see col. 7, ll. 31-33); and a plurality of piezoelectric oscillators (11, 12, 14) fixed on a main surface of the substrate in a matrix form, each of the piezoelectric oscillators (11, 12, 14) comprising: a plurality of piezoelectric layers (24, 26, 28, 30, 32) laminated in a direction parallel to the main surface of the substrate; inner electrodes (34, 36, 38, 40) disposed between the plurality of piezoelectric layers (24, 26, 28, 30, 32); and outer electrodes (42, 44) formed on end faces of the plurality of piezoelectric layers (24, 26, 28, 30, 32).

Note that the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation (that of claim 2) has not been given patentable weight.

Additionally note that it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed, e.g. as an ultrasonic probe

(as in claim 3), does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte *Masham*, 2 USPQ2d 1647 (1987).

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Lindemann et al. (US 6,066,911). Lindemann et al. show (figs. 1, 2) a sensor array comprising: a substrate (30); and a plurality of piezoelectric oscillators (20) fixed on a main surface of the substrate (30) in a matrix form, each of the piezoelectric oscillators (20) comprising: a plurality of piezoelectric layers (10) laminated in a direction parallel to the main surface of the substrate; inner electrodes (13, 15) disposed between the plurality of piezoelectric layers (10); and outer electrodes (15) formed on end faces of the plurality of piezoelectric layers (10).

Note that the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation (that of claim 2) has not been given patentable weight.

Additionally note that it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed, e.g. as an ultrasonic probe (as in claim 3), does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte *Masham*, 2 USPQ2d 1647 (1987).

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Obara et al. (JP 57-193199). Obara et al. show (figs. 1, 2) a sensor array comprising: a substrate (1); and a plurality of piezoelectric oscillators (2_1-2_n) fixed on a main surface of the

substrate (1) in a matrix form, each of the piezoelectric oscillators (2_1-2_n) comprising: a plurality of piezoelectric layers (3_1-3_n) laminated in a direction parallel to the main surface of the substrate; inner electrodes ($4'_1$-4_n) disposed between the plurality of piezoelectric layers (3_1-3_n); and outer electrodes (4_1-$4'_n$) formed on end faces of the plurality of piezoelectric layers (2_1-2_n).

Note that the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation (that of claim 2) has not been given patentable weight.

Additionally note that it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed, e.g. as an ultrasonic probe (as in claim 3), does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte *Masham*, 2 USPQ2d 1647 (1987).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art cited shows some aspects of the claimed invention.

Direct inquiry concerning this action to Examiner Dougherty at (703) 308-1628.

tmd

tmd

November 9, 2001

Thomas M. Dougherty

THOMAS M. DOUGHERTY
PRIMARY EXAMINER
GROUP ~~2100~~ 2800